



## The process of developing information and management competencies for masters of technical higher educational institutions

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**Abstract:** In the article presents the results of an ascertaining experiment on problems in the field of development of information and management competencies of masters of Technical higher educational institutions. The author analyzes the effectiveness of the process of development of information and management competencies, identifies factors that contribute to improving the development of masters of Technical higher educational institutions for future teaching activities. In the article the diagnostics of revealing readiness of development of information and management competencies on a measuring instrument (indicators) is given. The quality of education was monitored, on the basis of which indicators for the following evaluation objects were developed and tested: educational activities; extracurricular activities; the quality of the conditions for ensuring the educational process. Their use in the process of experimental and experimental work is also considered. The results of the determination of readiness of development of information and management competencies on combined levels of assessment are summarized.

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### 1.Introduction

In modern situations, the content of the pedagogical activity of the teacher of vocational education is changing dramatically, as the methods and methods of teaching develop rapidly. The effectiveness of teaching methods and technologies is determined, above all, by ensuring a new quality of education, when the result of education is the competence of the teacher in various spheres of life. Such a result is reachable if a graduate is ready to carry out educational activities. The readiness of students for pedagogical activity helps to successfully use knowledge and skills, maintain self-control and restructure themselves when unforeseen obstacles appear in the future. Improving the efficiency of the process of preparing students for pedagogical activity in the direction of vocational education serves as a means and goal of the methodical and substantive development of pedagogical processes in secondary specialized vocational educational institutions.

### 2. Material and Methods

Based on the current relevance, there is a necessity for a scientific substantiation and improvement of the measuring tool for determining readiness and identifying conditions for improving the efficiency of the preparation process for students' pedagogical activities in the Vocational Education direction. To achieve the goal of the study, the author of this article solved the following tasks:

- improve indicators (indicators) of students' readiness for teaching activities;
- to determine the level of readiness of students in the direction of "Professional education in the field of organization and management of pedagogical processes;
- to study the effectiveness of pedagogical processes organized by young professionals;
- identify the influencing factors on the effectiveness of pedagogical processes.

At the same time, it becomes important that the measuring tools for studying readiness for the pedagogical activity of future college teachers meet several requirements:

- measurement methods should complement and mutually check each other;
- the information obtained in the course of measurement must expressly state the readiness process for the pedagogical activity of future teachers of vocational education, be objective and sufficient.

Based on the above requirements, we have improved the indicators as measuring tools, with the help of which it was possible, on the one hand, to determine the current state of pedagogical training of students in the Vocational Education direction, on the other hand, to determine the quality of training and education of college students to identify and resolving existing problems, the solution of which will enhance the effectiveness of the process of preparing students for pedagogical activity.

The experiment, which determines the current state of readiness for the pedagogical activities of students in the direction of "Vocational Education" and teachers of the college, was held at the Tashkent State Pedagogical University, Namangan Engineering and Construction Institute (formerly Namangan Engineering and Pedagogical Institute), Fergana and Namangan State University, Namangan Transport College and information technologies.

With the subjects (graduate students in the direction of "Vocational Education"), the final diagnosis was carried out and the level of readiness for teaching activities was identified, systematization, synthesis, evaluation and analysis of the results were carried out.

Pedagogical processes are carried out in the field of two complementary systems, that is, in the process of educational and extracurricular activities. Therefore, indicators (indicators) have been improved for the following assessment objects: educational activities; extracurricular activities; quality conditions of the educational process.

The complex of educational activity indicators includes: educational achievements in the subjects of the pedagogical cycle and teaching practice; educational programs defining the content of vocational education in the direction 5330200 - Computer Science and Information Technology; pedagogical skills of a teacher (pedagogical tact, pedagogical abilities, culture of speech, possession of progressive pedagogical and information technologies).

The complex of indicators of extracurricular activities includes: types of non-educational activities carried out by a teacher during extracurricular activities: curatorial activities, organization of circles, organization of various types of events and competitions, conferences, etc., as well as achievement of a teacher in these types of activities.

The complex of indicators of the conditions for ensuring the educational process includes indicators for testing the knowledge of the future teacher on the equipment of the educational process, educational and methodological support of the educational process, material and technical equipment of the educational process.

The above sets of indicators (indicators) characterize the main elements of the quality of education (quality of goals,

The above sets of indicators (indicators) characterize the main elements of the quality of education (quality of goals, quality of conditions, quality of the process, quality of results).

Indicators of the level of preparedness of students of higher educational institutions in the direction of "Vocational education" for future work in colleges include:

First, preparation for teaching activities in the subjects of the teaching cycle and teaching

practice, their personal achievements in educational activities;

Secondly, the quality of the organization of pedagogical processes;

Thirdly, knowledge in the field of conditions for ensuring the educational process.

Monitoring was conducted during 2014-2017.

Monitoring the quality of the results of students' educational activities: in the subjects of the pedagogical cycle was assessed by the rating system of higher educational institutions (current, intermediate, final grades), based on which, students' performance in the subjects of the pedagogical cycle, mastery of knowledge, skills, skills according to the state educational standards on pedagogical practice by the method of questioning (according to the developed indicators).

### 3. Result

Monitoring the quality of the results of extra-curricular activities was assessed by a system for collecting data on the results of extra-curricular activities, which includes two complementary systems for collecting and processing data:

- Questionnaires (questionnaires), which are filled by students in the direction of "Vocational Education";

- Questionnaires (questionnaires), filled by college teachers.

The quality monitoring of the educational process provision conditions was assessed by the data collection system for the educational process support conditions, which includes complementary data collection and processing systems:

- Questionnaires (questionnaires), which are filled by students of higher educational institutions in the direction of "Professional Education";

- Questionnaires (questionnaires), filled by college teachers.

- Questionnaires (questionnaires), filled by the administration of the college.

Knowledge in the field of extracurricular pedagogical activity was assessed by indicators by proposing to the student in the Vocational Education direction a set of questions for identifying the knowledge necessary to perform extracurricular pedagogical activities. The use of these questions allowed us to reveal students' knowledge of the Vocational Education direction about the role, types of extracurricular teaching activities in the professional work of a teacher of vocational education, as well as the organization and management of extracurricular educational processes.

To date, there is already a well-established rating-point system for assessing the educational activities of students in directions that determine readiness for pedagogical activity during school hours. However, the readiness of students of the "Vocational Education" direction for extracurricular activities, as a rule, does not have an objective

assessment and has a serious drawback. Therefore, we have improved the indicators to determine the quality of preparation for extracurricular activities of the future college teacher - this is extremely important in development.

Identification of knowledge necessary for the implementation of extracurricular pedagogical activities was carried out according to student surveys in the direction of "Vocational Education" after undergoing pedagogical practice. Using this method revealed students' knowledge about the role, types of extracurricular teaching activities in the professional work of a teacher of vocational education, as well as the organization and management of extracurricular educational processes.

If a student in the direction of "Vocational education" the sum of points received for the proposed survey (12 in total) ranged from 11-12 points, then he referred to a high level of formation of readiness for the organization of extracurricular processes. They were clearly aware of the role and importance of extracurricular teaching activities, and fully possess solid knowledge, skills and abilities in technology for organizing extracurricular activities.

With a score of 9 to 10, students belonged to the average level, they stated that they did not have enough complete and solid knowledge to solve pedagogical problems in the field of extracurricular pedagogical activity.

If a student had a sum of points from 7 to 8, then he referred to a low level of readiness for the organization of extracurricular educational processes.

The student had a poor understanding of the role and significance of extracurricular teaching activities. They had not mastered all the knowledge necessary for the performance of pedagogical actions.

If a student received a result of less than 7 points, then it was believed that he was not ready to implement pedagogical processes outside extracurricular time. His knowledge turned out to be unsystematic, fragile.

The definition of knowledge on the conditions of the educational process was also carried out according to the polls of students in the direction of "Vocational Education", the number was 14 questions. The answers were evaluated in points, after which the points were calculated. A student who scored from 8 to 9 points belonged to a low level, from 10 to 11 points to an average, from 12 to 14 points to a high level of preparedness in the field of knowledge of the conditions for ensuring the educational process (Table 1). In the course of our work, we realized that the level of readiness for learning activities, extracurricular activities, and the conditions for ensuring the educational process may be different, and it is in this form that they can hardly be identified.

Therefore, it was decided to draw up a scale of combined assessment of the level of readiness for pedagogical activity, which takes into account mixed graduation, combining two adjacent levels. This will allow to take into account the variation in the level of preparedness for educational activities (table 2).

**Table 1. Indicators of readiness for the pedagogical activity of students in the direction of "Vocational education" (5330200 - Informatics and information technology)**

Level	Learning activities	Extracurricular activities	Terms of the educational process
	Number of points	Number of points	Number of points
	In percents	Total 12 points	Total 12 points
Tall	86 - 100	11 - 12	12 - 14
Average	71 - 85	10 - 9	11 - 10
Low	55 - 70	8 - 7	9 - 8
Unacceptable	Below 55	Below 7	Below 8

Willingness on the levels of educational, extracurricular activities and the conditions for ensuring the educational process of students in the direction of "Vocational education", college teachers was determined by comparing questionnaires with a measuring tool (indicators). To determine the total amount of points by level and total readiness, each level of readiness was assessed according to a five-point system. And for each level, we took into account the average amount of points. The maximum amount of points ( $M_{S_b}$ ) on three levels was 15.

The average amount of points and the volume of students' knowledge in the direction of "Vocational Education" by groups and teachers of colleges was determined by the following formulas:

$$O_{r_{1,2}} = E_{A_1} + E_{A_2} + E_{A_3}; (1)$$

**Table 2. The combined assessment of readiness for pedagogical activity**

Level	Level Signs	Level ratio
9	All components of high-level educational readiness	Tall
8	Two components of high-level educational readiness, one on average	
7	All components of preparedness for teaching at the middle level	Average
6	Two components of readiness for pedagogical activity at an average level, one at a high level	
5	Two components of readiness for teaching at the middle level, one at a low level	
4	One component of readiness for pedagogical activity at a medium level, one at a low level, one at a high level.	
3	All components of readiness for pedagogical activity at a low level	Low
2	Two components of readiness for teaching activities at a low level, one on average	
1	Two components of readiness for pedagogical activity at a low level, one at a high	
0	At least one readiness component is not formed.	
		Unacceptable

$$S_r = \frac{O_{r_{1,2}}}{G_{r_{1,2}}}, (2)$$

$$Q_r = \frac{S_r}{M_{S_b}} \times 100\%; (3)$$

$$Q_{K_1} = \frac{S_{K_1}}{M_{S_b}} \times 100\%; (4)$$

G1, G2, G3, G4, G5, G6, G7, G8 - groups;  
 $O_{r_{1-8}}$  – total points of groups G1, G2;  $E_{A_{1,2,3}}$  – the sum of points of groups according to the levels of educational activities, extracurricular activities, the conditions for the educational process;  $G_{r_{1-8}}$  – number of students in groups;  $S_r$  – average amount of points by groups;  $Q_r$  – average amount of points by groups;  $M_{S_b}$  – volume of students' knowledge in groups; maximum points (15 points).

The result indicates a lack of knowledge of students in the direction of "Vocational education" and college teachers in the field of educational, extracurricular activities, conditions for the provision of the educational process.

So, the experiment showed that the effectiveness of pedagogical processes organized in higher educational institutions in preparing students in the direction of "Vocational Education", as well as by young specialists in college, is unsatisfactory.

Graduates in the direction of "Vocational Education" do not sufficiently form pedagogical skills in organizing and managing pedagogical processes; theoretical knowledge in the field of ensuring the effectiveness of pedagogical processes is insufficient. Many of them express dissatisfaction with their preparation for teaching. The analysis of the results of the experiment was one of the factors that led to the conclusion that it would be expedient to create a pro-pedagogical course "Pedagogical Competence of a Vocational Education Teacher" (PEP), the main goal of which is to improve the training of students in the "Vocational Education" direction to work in college. The theoretical substantiation and experimental assessment of the readiness of future college teachers, after studying the propaedeutic course, is significant and important.

After analyzing the state of pedagogical literature, we came to the conclusion that in educational institutions methodological support in the field of organization and management of pedagogical processes is insufficient. Therefore, to solve the above problems, there is a need to develop appropriate methodological support. Methodological support as one of the conditions for the effectiveness of pedagogical processes is one of the determining factors for the high quality of education.

Therefore, it is necessary to develop the following types of methodological support and equip them with graduates of higher educational institutions and young teachers:

A fund of technologies for the implementation of educational work, expressed in various approaches for the organization and management of pedagogical processes;

Methodological development, manuals, recommendations on the organization and management of pedagogical processes in the conditions of specialized secondary educational institutions.

They will help ensure that the graduate can consciously and conscientiously, competently begin and successfully perform their teaching activities.

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Thus, students of higher educational institutions in the direction of "Vocational Education" should be given special attention, since they are the ones who in the future carry out their work in colleges and lyceums and are responsible for the quality of education of junior specialists. The importance and necessity of increasing the efficiency of the preparation process for the educational activities of graduates of higher educational institutions in the direction of "Professional Education" appears.

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